

EXHIBIT L

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UNITED STATES PATENT AND TRADEMARK OFFICE

ART UNIT 235

Examiner Huy Nguyen

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Richard A. Lang

CASE 211 (M914US)

SERIAL NO. 07/347,629

FILED May 5, 1989

SUBJECT AUDIO/VIDEO TRANSCEIVER APPARATUS INCLUDING COMPRESSION MEANS,
RANDOM ACCESS STORAGE MEANS, AND MICROWAVE TRANSCEIVER MEANS

THE COMMISSIONER OF PATENTS AND TRADEMARKS
WASHINGTON, D.C. 20231

SIR:

AMENDMENT "B"

In response to the Office Action mailed September 4, 1990, please amend
the above-identified patent application as indicated by the following:

In the claims

Please amend claims 26-30 as follows:

1. 26. (amended) An audio/video transceiver apparatus comprising:

1) input means for receiving audio/video source information, said
audio/video source information comprising a multiplicity of video frames in
the form of one or more full motion video programs;

2) compression means, coupled to said input means, for compressing said
audio/video source information into a time compressed representation thereof
having an associated time period that is shorter than a time period associated
with a real time representation of said audio/video source information;

3) random access storage means, coupled to said compression means, for

storing the time compressed representation of said audio/video source information; and

1) output means, coupled to said random access storage means, for receiving the time compressed audio/video source information stored in said random access storage means for transmission away from said audio/video transceiver apparatus;

2) said input and output means comprising microwave transceiver means, coupled to a microwave link, for receiving said audio/video source information over said microwave link and for transmitting said time compressed audio/video source information stored in said random access storage means over said microwave link.

2. ~~27.~~ (amended) An audio/video transceiver apparatus comprising:

1) input means for receiving audio/video source information, said audio/video source information comprising a multiplicity of video frames in the form of one or more full motion video programs;

2) compression means, coupled to said input means, for compressing said audio/video source information into a time compressed representation thereof having an associated time period that is shorter than a time period associated with a real time representation of said audio/video source information;

3) random access storage means, coupled to said compression means, for storing the time compressed representation of said audio/video source information, said random access storage means comprising a bubble memory; and

4) output means, coupled to said random access storage means, for receiving the time compressed audio/video source information stored in said random access storage means for transmission away from said audio/video transceiver apparatus.

3. ~~28.~~ (amended) An audio/video transceiver apparatus comprising:

1) input means for receiving audio/video source information, said audio/video source information comprising a multiplicity of video frames in the form of one or more full motion video programs;

1) compression means, coupled to said input means, for compressing said audio/video source information into a time compressed representation thereof having an associated time period that is shorter than a time period associated with a real time representation of said audio/video source information;

1) random access storage means, coupled to said compression means, for storing the time compressed representation of said audio/video source information, said random access storage means comprising digital paper; and

1) output means, coupled to said random access storage means, for receiving the time compressed audio/video source information stored in said random access storage means for transmission away from said audio/video transceiver apparatus.

4 29. (amended) An audio/video transceiver apparatus comprising:

B 1) input means for receiving audio/video source information, said audio/video source information comprising a multiplicity of video frames in the form of one or more full motion video programs;

1) compression means, coupled to said input means, for compressing said audio/video source information into a time compressed representation thereof having an associated time period that is shorter than a time period associated with a real time representation of said audio/video source information;

1) random access storage means, coupled to said compression means, for storing the time compressed representation of said audio/video source information, said random access storage means comprising one or more magnetic disks; and

1) output means, coupled to said random access storage means, for receiving the time compressed audio/video source information stored in said random access storage means for transmission away from said audio/video transceiver apparatus;

5 30. (amended) An audio/video transceiver apparatus comprising:

1) input means for receiving audio/video source information as a time compressed digital representation thereof, said audio/video source information

comprising a multiplicity of video frames in the form of one or more full motion video programs, said time compressed digital representation of said audio/video source information being received over an associated burst time period that is shorter than a real time period associated with said audio/video source information;

random access storage means, coupled to said input means, for storing the time compressed digital representation of said audio/video source information received by said input means; and

B' output means, coupled to said random access storage means, for receiving the time compressed digital representation of said audio/video source information stored in said random access storage means for transmission away from said audio/video transceiver apparatus;

1) said input and output means comprising microwave transceiver means coupled, via a microwave link, to a video library, said video library storing a multiplicity of [items of audio/video source information] full motion video programs in said time compressed digital representation for selective retrieval, in said associated burst time period, over said microwave link, said microwave transceiver means being further operative for transmitting, in said burst time period, said time compressed digital representation of said audio/video source information stored in said random access storage means over said microwave link.

Remarks

Applicant notes that the outstanding Office Action in this application was directed to the previous attorney of record, whose power was revoked in a paper accompanying applicant's Amendment "A" filed on May 7, 1990. It is again respectfully requested that all future correspondence in connection with this application be directed to applicant's duly appointed, undersigned attorney.

Claims 26-30 have been amended to improve the clarity of the claim language and to direct them more specifically to the subject matter that applicant regards as his invention.

Claim 28 has been rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, the Examiner has stated that he is uncertain as to the meaning of the term "digital paper". Reconsideration of this rejection is respectfully requested. Enclosed for the Examiner's benefit is a copy of page 102 of the February 13, 1989, edition of the widely known publication Electronic Engineering Times. This page contains the article entitled Back to Paper Tape-Digital Paper, which explains the concept of digital paper as being a form of data storage using optical media. It is respectfully submitted that this term is well understood by those person having ordinary skill in the art and that its use by applicant in his specification and claims is therefore permitted under 35 U.S.C. 112.

Claims 26 and 30 have been rejected as being unpatentable under 35 U.S.C. 103 over Southworth et al. in view of Lambert and Fox et al. Claims 27-29 have been rejected as being unpatentable under 35 U.S.C. 103 over Southworth et al. in view of unspecified art. These rejections are respectfully traversed, particularly with respect to claims 26-30, as presently amended. Claim 26, as amended, specifically calls for "An audio/video transceiver apparatus comprising: input means for receiving

audio/video source information...comprising a multiplicity of video frames in the form of one or more full motion video programs; compression means...for compressing said audio/video source information into a time compressed representation thereof having an associated time period that is shorter than a time period associated with a real time representation of said audio/video source information; random access storage means...for storing the time compressed representation...; and output means...; said input and output means comprising microwave transceiver means...." Claims 27-29, as amended, call for substantially the same structure recited above and further specifically recite that the random access storage means comprises a bubble memory, digital paper, and one or more magnetic disks, respectively. Claim 30, as amended, specifically calls for "An audio/video transceiver apparatus comprising: input means for receiving audio/video source information as a time compressed digital representation thereof, said audio/video source information comprising a multiplicity of video frames in the form of one or more full motion video programs, said time compressed digital representation of said audio/video source information being received over an associated burst time period that is shorter than a real time period associated with said audio/video source information; random access storage means...for storing the time compressed digital representation of said audio/video source information received by said input means; and output means...; said input and output means comprising microwave transceiver means coupled, via a microwave link, to a video library, said video library storing a multiplicity of full motion video programs in said time compressed digital representation for selective retrieval, in said associated burst time period...." The above-recited important structural features of applicant's invention set forth in amended claim 26 provide an audio/video transceiver having the capability of receiving audio/video source information in the form of a one or more full motion video programs over a microwave link, compressing the one or more full motion video programs into a time compressed representation thereof having an associated time period that

is shorter than a time period associated with a real time representation of the one or more full motion video programs, storing the time compressed representation of the one or more full motion video programs in a random access storage, and then transmitting the time compressed representation of the one or more full motion video programs stored in the random access storage to a destination device via a microwave link. Similarly, the important structural features set forth in claims 27-29, as amended, provide an audio/video transceiver having the capability of receiving audio/video source information in the form of a one or more full motion video programs, compressing the one or more full motion video programs into a time compressed representation thereof having an associated time period that is shorter than a time period associated with a real time representation of the one or more full motion video programs, storing the time compressed representation of the one or more full motion video programs in a random access storage, and then transmitting the time compressed representation of the one or more full motion video programs stored in the random access storage to a destination device. In accordance with the above-recited important structural features of applicant's invention set forth in amended claim 30, the audio/video source information is provided by a video library that stores a multiplicity of full motion video programs as time compressed digital representations thereof for selective retrieval by the claimed transceiver, in a burst time period, over a microwave link. The time compressed representation of each retrieved full motion video program is stored in a random access storage and may then be transmitted to a destination device over a microwave link in the same burst time period. These specifically claimed features of applicant's invention are simply not shown or suggested by any of the cited references, taken alone or in any combination.

Southworth et al. teaches a slow-scan television system for freezing a single frame of a television signal and then transmitting that single frame or still picture using communication mediums of limited bandwidth, such as

telephone lines, radio waves, etc. As set forth at column 2, lines 59-65 of Southworth et al., transmission of a typical single frame (still picture) of video information requires from 8.25 to 74 seconds, depending upon the bandwidth of the chosen communications medium. This is totally unlike applicant's claimed transceiver apparatus which receives and/or transmits an entire full motion video program, comprising tens of thousands of video frames, in a burst time period that is shorter than the time periods taught by Southworth et al. for transmission of a single frame of video information. In fact, slow-scan television systems, as typified by the teachings of Southworth et al., are simply incapable of transmitting full motion video programs. This inherent limitation may be understood with reference to page 16-6 of The ARRL Operating Manual and to pages 14-34 and 14-35 of the 1984 edition of The Radio Amateur's Handbook, both of which are publications of the American Radio Relay League. A copy of the cited pages of each of these publications is enclosed for the Examiner's benefit.

Further, the video compressor 25 of Southworth et al. operates to receive a composite video signal indicative of a single frame of video information corresponding to a frozen television picture and to provide a slow-scan output signal indicative thereof. This function is accomplished within video compressor 25 by digitizing the single frame of video information, writing the single frame digitized information into a digital memory, and then reading out the single frame digitized information stored in the memory through a digital-to-analog converter at a slow-scan rate. No time compression whatsoever takes place in video compressor 25 or in any other portion of the apparatus of Southworth et al. This is totally unlike applicant's claimed invention in which his compression means is operative for providing a time compressed representation of a multiplicity of video frames in the form of one or more full motion video programs and in which his random access storage means is operative for storing that time compressed representation of a multiplicity of video frames. In short, Southworth et al.

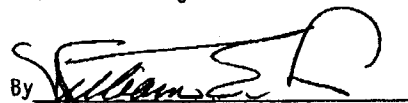
contains absolutely no recognition of the need for transmitting and/or receiving full motion video programs at an accelerated rate as the result of time compression of those full motion video programs, let alone of applicant's specifically claimed structure for accomplishing that result.

Neither Lambert nor Fox et al. adds anything to the teachings of Southworth et al. so as to in any way render applicant's specifically claimed invention obvious over that combination of references. Lambert is directed to an apparatus for automatically inserting advertising spots at desired points in ordinary television programming. The apparatus of Lambert cannot be combined in an operative way with that of Southworth et al. since Lambert relates to ordinary fast-scan, full motion television transmission while Southworth et al. relates to slow-scan transmission of a single television frame or still picture, a totally different area of the art, as discussed in detail above. Fox et al. is directed to an interactive cable television network in which a wider range of television and/or video channels than was previously possible is provided for real time access by the cable television subscriber. Like Lambert, and for the same reason as set forth above, the apparatus of Fox et al. cannot be operatively combined with that of Southworth et al.

For the reasons set forth in detail above, it is applicant's position that the references applied by the Examiner cannot be combined in an operative way and, even if they could be so combined, would still fail to yield applicant's specifically claimed invention. It is therefore respectfully submitted that claims 26-30, as amended, are patentable over all of the cited references, taken alone or in any combination, and that this application is now in condition for allowance. Favorable action is accordingly solicited.

Respectfully submitted,

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By 

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January 4, 1991
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